UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
CARIBBEAN ENVIRONMENTAL PROTECTION DIVISION
CITY VIEW PLAZA II, SUITE 7000
GUAYNABO, PUERTO RICO 00968-8069

SEP 0 4 2013

CERTIFIED MAIL - RETURN RECEIPT REQUESTED
Article Number: 7009 2250 0003 8661 7509

Alberto M. Lázaro Castro, P.E.
Executive President
Puerto Rico Aqueduct and Sewer Authority
P.O. Box 7066
San Juan PR 00916-9990

Honorable Carmen Yulín Cruz Soto
Mayor
Municipality of San Juan
P.O. Box 9024100
San Juan, Puerto Rico 00902-4100

Eng. Miguel A. Torres
Secretary
Puerto Rico Department of Transportation and Public Works
PR Dept. of Transportation and Public Works, P.O. Box 41269, San Juan PR 00940-1269

Re: Stop 18 Reconnaissance Inspection July 8, 2013
Field Screening at Calle Figueroa/Calle Villamil Storm Sewer Main
Municipality of San Juan ("MSJ") Municipal Separate Storm Sewer System ("MS4") Permit (PRR040036)
PRASA Puerto Nuevo Wastewater Treatment Plant Collection System (PR0021555)
Puerto Rico Department of Transportation and Public Works (DTOP) MS4 Permit (PRR040080)

Dear Messrs. Lázaro, Cruz, and Torres:

This letter is in reference to the National Pollutant Discharge Elimination System ("NPDES") Reconnaissance Inspection ("RI") with sampling conducted by the United States Environmental Protection Agency's ("EPA") Region 2, Water Compliance Branch and Caribbean Environmental Protection Division on July 8, 2013. This report indicates that certain potential non-compliance items and/or areas of concern which must be corrected and/or investigated to ensure compliance with your respective NPDES Permits. Note that some of the findings identified in this report were previously communicated to San Juan and PRASA via phone and/or email and some of these items have already been addressed in full or in part.

Within forty five (45) days of receipt of this letter, respond to EPA-CEPD in writing with the actions that MSJ, PRASA, and DTOP has taken or will take to address the non-compliance items and areas of concern identified in the report. MSJ, PRASA and/or DTOP must add these items to its Action Registry, and work to correct these items in an expeditious manner. If the item has already been addressed also please note that in your response. However, if these items require extensive repairs and/or capital investments, than the work shall be scheduled in consideration of other priorities and the schedule included on the Action Registry.

Also, send a copy of your response to Douglas McKenna, Chief Water Compliance Branch, EPA Region 2, 290 Broadway, NY, NY 10007 and to Wanda E. García Hernández, Director, Water Quality Area, EQB, Puerto Rico Environmental Quality Board, P.O. Box 11488, Santurce, Puerto Rico 00910

If you have any questions please feel free to contact me at 787-977-5840.

Sincerely,

Jaime Géliga
Chief
CEPD-MWPB

Enclosure

cc: Wanda E. García Hernández, Director, Water Quality Area, PREQB
Eng. María Matos, Municipality of San Juan, Environmental Affairs Program
Eng. Hans Figueroa, Consultant, PRDNER, "Hans Figueroa" <hans@caribe.net>
Hon. Carmen R. Guerrero Pérez, Secretary, PRDNER
Ms. Irma López, Acting Director, Compliance and Quality Control, PRASA
Eng. Carmen G. Alicea, Chief, Env. Studies Office PR Dept. of Transp. and Public Works

bcc: Barbara McGarry, USEPA - CAPS
M. Lantner, DECA-WCB w/enclosure
Eduardo J. Gonzalez, EPA-ORC electronically via email
Kim Kramer, EPA-ORC electronically via email
Diane Gomes, EPA-ORC electronically via email
Susan Bruce, EPA-HQ electronically via email
Alan Morrissey, EPA-HQ electronically via email
Keith Tashima, USDOJ, ENRD-EES electronically via email
Patricia McKenna USDOJ, ENRD-EES electronically via email
Rachel K. Evans, USDOJ, ENRD-EES electronically via email

EPA

United States Environmental Protection Agency Washington, D.C. 20460
Water Compliance Inspection Report Form Approved.
OMB No. 2040-0057
Approval expires 8-31-98

Section A: National Data System Coding (i.e., PCS)

Transaction Code	NPDES	yr/mo/day	Inspection Type	Inspector	Fac Type
1 N 2	3 PRR040036 11	12 130708 17			18-19 R201

Remarks: 21 ____ 66

Inspection Work Days	Facility Self-Monitoring Evaluation Rating	BI	QA	Reserved
67 3 69	70 U	71	72	73747580

Section B: Facility Data

Name and Location of Facility Inspected *(for industrial users discharging to POTW, also include POTW name and NPDES permit number)*

Municipality of San Juan MS4 (Stop 18 Calle Figueroa/Calle Villamil Storm Sewer Main)
P.O. Box 9024100, San Juan, Puerto Rico 00902-4100

Entry Time/Date Permit Effective Date: July 8, 2013

Exit Time/Date Permit Expiration Date: July 8, 2013

Name(s) of On-Site Representative(s)/Title(s)/Phone and Fax Number(s)

Not Contacted - San Juan MS4 Eng. María Matos:
MMATOS01@SanJuanCapital.com
Executive Director Tel. No. (787) 480-2253
Environmental Affairs Program

Name, Address of Responsible Official/Title/Phone and Fax Number(s)

Honorable Carmen Yulín Cruz Soto, Mayor
Autonomous Municipality of San Juan
P.O. Box 9024100
San Juan, Puerto Rico 00902-4100

Contacted: Yes [ ] No [x]

Other Facility Data

Alberto M. Lázaro Castro, P.E. Executive President, Puerto Rico Aqueduct and Sewer Authority (PRASA) Puerto Nuevo Regional WWTP, P.O. Box 7066, Barrio Obrero Station, Santurce, Puerto Rico 00916| NPDES Permit No. PR0021555

Section C: Areas Evaluated During Inspection *(Check only those areas evaluated)*

	Permit		Flow Measurement		Operations & Maintenance CSO/SSO (Sewer Overflow)
	Records/Reports		Self-Monitoring Program		Sludge Handling/Disposal Pollution Prevention
x	Facility Site Review		Compliance Schedules		Pretreatment Multimedia
x	Effluent/Receiving Water		Laboratory	x	Storm Water

Section D: Summary of Findings/Comments *(Attach additional sheets of narrative and checklists as necessary)*

Roberto Martínez – PRASA Metro Region, San Juan Operations Supervisor – 787-406-6413

Not Contacted – PR Dept. of Transportation and Public Works - MS4 Permit No. PRR040080
Contact Eng. Carmen G. Alicea (787) 721-8787, Chief, Env. Studies Office
PR Dept. of Transportation and Public Works, P.O. Box 41269, San Juan PR 00940-1269
SEV Code A0020 WW SSO - Discharge to Waters

See Enclosed Report

Name(s) and Signature(s) of Inspector(s)	Agency/Office/Phone and Fax Numbers	Date
Murray Lantner, P.E. Environmental Engineer	EPA Region 2 WCB/(212) 637-3976/ FAX: 637-4211	9/4/13
Alex Rivera, Env. Eng. CEPD	EPA-CEPD - 787-977-5845	9/4/13
Signature of Management Q A Reviewer: Jaime Geliga, Chief, CEPD-MWPB	EPA Region 2, CEPD MWPB 787-977-5840 (ph)	9/4/13

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2, DECA-WCB
20th Floor, 290 Broadway, NY, NY 10007

AND

USEPA Region 2, CEPD-MWPB
CITY VIEW PLAZA II – SUITE 7000
#48 RD. 165 km 1.2
GUAYNABO, PR 00968-8069

Reconnaissance Inspection: Department of Natural and Environmental Resources (DNER) Barriada Figueroa (Stop 18 Pump Station) collection system

Puerto Rico Department of Transportation and Public Works (PRR040080).

Municipality of San Juan Municipal Separate Storm Sewer System ("MS4") Permit (PRR040036)

PRASA Puerto Nuevo Wastewater Treatment Plant Collection System (PR0021555)

Inspection Date: July 8, 2013

Inspectors: Murray Lantner, P.E. Env. Eng. USEPA Region 2, DECA-WCB, (212) 637-3976
Alex Rivera, Env. Eng. EPA Region 2 CEPD-MWPB (787) 977-5845

A. Introduction

On July 8, 2013 Murray Lantner and Alex Rivera of EPA Region 2 conducted field screening of the storm sewer main, on Calle Figueroa/Calle Villamil (essentially the same street that changes names at or about Calle Progreso) from Calle Corchado to Calle Las Flores, which is tributary to the DNER Stop 18 Pump Station. The DNER Stop 18 Pump Station discharges to the Martin Pena Channel adjacent to the Municipality of San Juan's Parque Central.

The storm sewer map submitted by the Puerto Rico Department of Transportation and Public Works to EPA in response to a 2013 Request for Information (Gráfica No. 41a

(Alternative B) TIF File No. 44 (Attachment 2 of this inspection report) and labeled Proposed Storm Sewer Improvements P.R. Department of Public Works, Bureau of Highways (Estado Libre Asociado de Puerto Rico Department de Obras Públicas Negociado de Carreteras Alcantarillado Pluvial Sector Parada 18 Mejoras Propuestas (Preliminar)) shows the proposed sewer system on Calle Figueroa/Calle Villamil flowing south into an existing sewer at Calle Progreso and Calle Villamil and then continuing south to Calle Las Flores and then to the DNER Stop 18 Pump Station.

PR DTPW also submitted a drawing of the Stop 18 Pump Station (Gráfica No. 42 TIF File No. 45)(Attachment 3). Gráfica No. 40a (Alternative A) (TIF File No. 42) (See Attachment 4) contains a similar storm sewer map as Attachment 2 but shows that the Dept. of Public Works Bureau of Highways rebuilt the sewer all of the way from Ave. Fernandez Juncos to the Stop 18 Pump Station.

EPA conducted field screening of grab samples using Mardel Ammonia Test Strips (range from 0-6 mg/l) Note that these are not 40 CFR Part 136 approved methods, but are useful for field screening of outfalls. Ammonia has been used as a screening tool by some MS4s with severe or widespread sewage contamination. An ammonia concentration over 1 mg/l is generally considered to be a positive indicator for sewage contamination. Although some limitations have been identified, such as not detecting diluted sewage or elevated ammonia due to non-target sources such as irrigation, it does serve as a valuable screening tool (Section 12, P. 132 and 133 of the 2004 IDDE Manual http://cfpub1.epa.gov/npdes/stormwater/idde.cfm).

On July 8, 2013 there was no precipitation during the inspection. Weather data from the LMM International Airport reported 0.01" of precipitation on July 8, 2013 and 0.33" on July 7, 2013 (http://www.nws.noaa.gov/climate/index.php?wfo=sju)

B. Potential Non Compliance (PNC) Items/Areas of Concern (AOC)

1. Calle Figueroa and Calle Corchado – Photos DSCN1354 (1354) to 1357

   a. EPA opened the manhole on the western side of Calle Figueroa at the North Side of Calle Corchado and observed a large (what appeared to be a box sewer) with a large volume of standing water. A grab sample was taken and using ammonia test strips the ammonia level was 1 mg/l.

   b. As shown in photograph 1354 on the west side of Calle Figueroa on the South Side of Calle Corchado there was a flow entering the large storm sewer shown in photos 1355 to 1357. Ammonia concentrations of this flow entering the large storm sewer was 0.5 mg/l.

2. Calle Villamil/Calle Progreso
   The manhole for the large storm sewer on western side of street initially had large volume of standing water with ammonia levels of 1 mg/l but, apparently after the Stop 18 Pump Station activated, there was a considerable flow in the large storm sewer flowing

south towards the pump station Photos 1364, 1365 Video 1366. There were 2 other pipes that were visible and had dry weather flows into the large storm sewer. One pipe with a dry weather flow from the east (Photo 1364, Video 1366) had ammonia levels of 0.5 mg/l. Another pipe entering relatively high in the manhole (Photo 1365 and Video 1366) from the northwest had ammonia levels of approximately 1 mg/l. After the apparent activation of the Stop 18 pump station another sample was taken in the large storm sewer main and there was an ammonia concentration of 3 mg/l. It is possible that other pipes enter into this manhole, however, it appears that the base of the manhole is larger than the upper portions of the manhole, and the inspectors were unable to see beneath this ledge or rim.

3. Calle Villamil and Calle Las Flores
   As shown in photograph 1369 there is a deep manhole for the large storm sewer that flows south from Calle Las Flores to the DNER Stop 18 Pump Station. Ammonia levels taken from the storm sewer at this location had ammonia levels of 1 to 3 mg/l.
   In August 2008 EPA's Contractor, SAIC, collected a sample at this same location and the results are contained in 2008 of the March 2009 inspection report. The SAIC inspection verified via dye testing that this same storm sewer at Calle Las Flores and Calle Villamil flows into the Stop 18 Pump Station and also verified that there was sewage in this large storm sewer that enters the Stop 18 PS as shown in the table below.

Table 10. Las Flores and Villamil Sampling Results
Samples Collected August 19 and 21, 2008

Parameter	Average	Range
BOD (mg/L)	70.5	43 - 98
Ammonia (mg/L)	19.5	19-20
Surfactants (mg/L)	2.2	1.5 - 2.9
Potassium (mg/L)	10.4	8.8 - 12
Caffeine (ug/L)	18.85	15.4 - 22.3
Fecal Coliform (cfu/100 ml) Daily Geometric Mean	5,023,780	4,378,177 - 5,669,383
Fecal Enterococcus (cfu/100 ml) Daily Geometric Mean	2,114,516	1,539,535 - 2,749,498

4. Generally speaking each of the samples taken from either the standing or flowing water in the large storm sewer had a sewage odor.

5. In addition to SAIC (EPA Contractor) samples taken in 2008, SAIC conducted sampling in 2006 at the Stop 18 PS wet well that also verified sewage entering the pump station as did sampling conducted EPA's contractor ERG in 2011 at the Stop 18 discharge point in Parque Central. DNER sampling at the pump station conducted in 2012 also shows that there is sewage in the Stop 18 PS discharge. EQB sampling in 1994/1996 also confirmed that there was sewage in this sewer.

6. Based upon the Department of Public Works, Bureau of Highways' Storm Sewer Maps provided by the PRDTPW to EPA in 2013 in response to a Request for Information the Proposed Improvements Graphic No. 41a Alternative B (Attachment 2) and Graphic No. 40a Alternative A (Attachment 4), as well as EPA's staff Best Professional Judgment and based on the size and alignment of the storm sewer, the sewer that runs from north to south down Calle Progreso/Calle Villamil from at least Calle Corchado flows into the Stop 18 Pump Station. Based on the field screening, ammonia levels and odor of samples, the sewer is conveying sewage to the Stop 18 Pump Station. Sampling by EPA's Contractor SAIC in 2006 and 2008, EPA's contractor ERG in 2011 and DNER samples in 2012 as well as a 1994/1996 study by the Puerto Rico Environmental Quality Board (Att. 5), also confirm sewage entering the Pump Station. The Dept. of Public Works, Bureau of Highways Graphic 41.a (Att.2) shows that this party proposed construction of several storm sewers tributary to the Stop 18 Pump Station including the large storm sewer on Calle Figueroa/Calle Villamil running from Ave. Fernández Juncos then South to Calle Progreso where it joins an existing sewer and flows about one more block into the Stop 18 Pump Station. Graphic 40a, Alternative A (Attachment 4) shows this large storm sewer on Calle Figueroa/Calle Villamil entering the Stop 18 Pump Station via a proposed storm sewer form Calle Progreso to the Pump Station.

C. ATTACHMENTS

1. Photograph Log and Photographs
2. PR Dept. or Public Works Bureau of Highways Map of Stop 18 PS Collection System Proposed Improvements Gráfica 41.a Alternative B (TIF File No. 44)
3. PR Dept. or Public Works Bureau of Highways Map of Stop 18 PS (Gráfica No. 42)
4. PR Dept. or Public Works Bureau of Highways Map of Stop 18 PS Collection System Proposed Improvements Grafica 41.a Alternative A (TIF File No. 42)
5. PR EQB 1994/1996

ATTACHMENT 1 – Photo log July 8, 2013 Photos in the Stop 18 Pump Station Area

Photos July 8, 2013 Barriada Figueroa, Stop 18 Pump Station Drainage. Photos Taken with Nikon Coolpix P510 Digital Camera M. Lantner EPA Region 2 DECA-WCB	
Photo	**Photo Description**
DSCN1354	Flow entering the large storm sewer shown in photos 1355 to 1377 on the west side of Calle Figueroa on the south side of Calle Corchado
DSCN1355	Storm sewer manhole west side of Calle Figueroa on the south side of Calle Corchado
DSCN1356	Storm sewer manhole west side of Calle Figueroa on the south side of Calle Corchado
DSCN1357	Storm sewer manhole west side of Calle Figueroa on the south side of Calle Corchado
DSCN1358	Street sign at Calle Villamil and Calle Progreso
DSCN1359	Street sign at Calle Villamil and Calle Progreso
DSCN1360	Potential sanitary sewer manhole at Calle Villamil and Calle Progreso
DSCN1361	Manhole at Calle Villamil and Calle Progreso There was a white closed pipe inside the manhole and also an apparent catch basin connection into the large storm sewer that flows to the DNER Stop 18 PS.
DSCN1362	Manhole at Calle Villamil and Calle Progreso. There was a white closed pipe inside the manhole and also an apparent catch basin connection into the large storm sewer that flows to the DNER Stop 18 PS.
DSCN1363	Manhole at Calle Villamil and Calle Progreso. There was a white closed pipe inside the manhole and also an apparent catch basin connection into the large storm sewer that flows to the DNER Stop 18 PS.
DSCN1364	Large storm sewer manhole at Calle Villamil and Calle Progreso with a flow entering from the east.
DSCN1365	Large storm sewer manhole at Calle Villamil and Calle Progreso with a flow entering from the northwest
DSCN1366	Video of large storm sewer manhole with flows entering from the northwest and east at Calle Villamil and Calle Progreso
DSCN1367	Manhole Calle America and Calle Progreso
DSCN1368	Street sign at Calle America and Calle Progreso
DSCN1369	Large stormsewer manhole at Calle Las Flores and Calle Villamil
DSCN1370	Grass area at the Stop 18 Pump Station

ATTACHMENT

1

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DSCN1355.JPG
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DSCN1356.JPG
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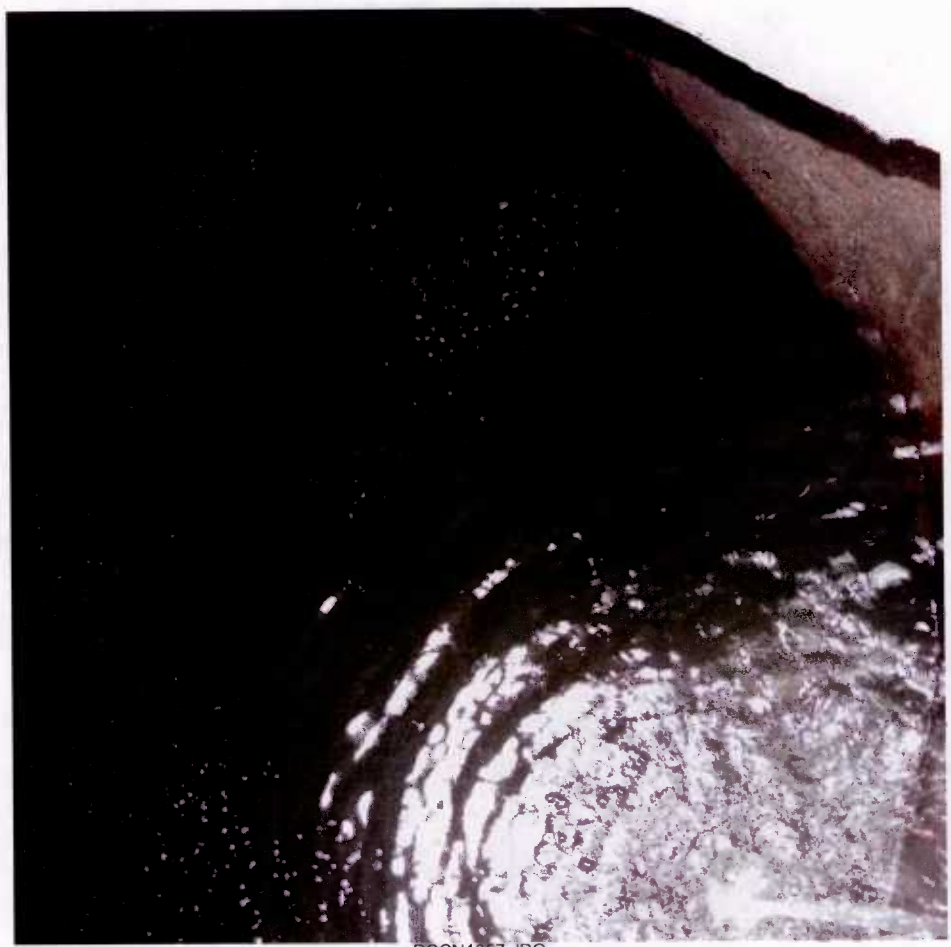

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Nikon Coolpix P510

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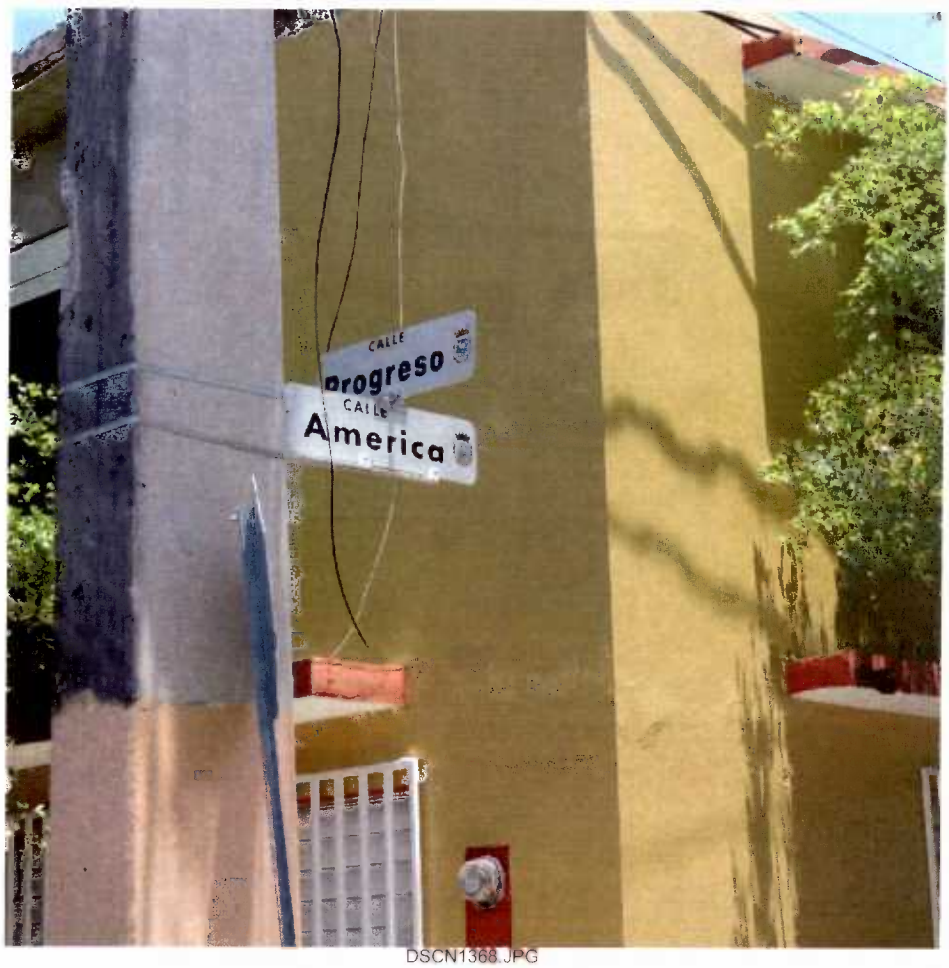
07/08/2013



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Nikon Coolpix P510

ATTACHMENT

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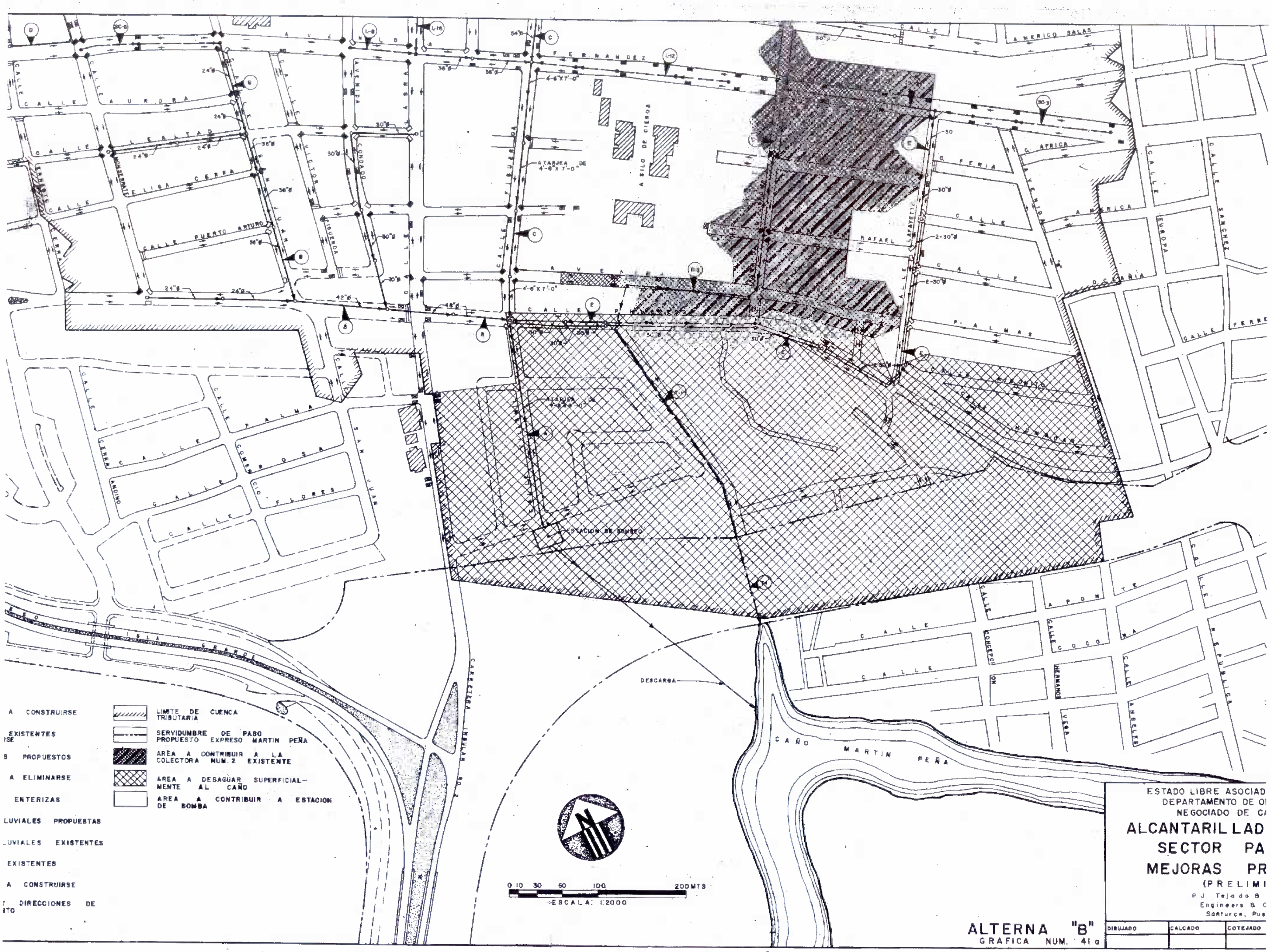

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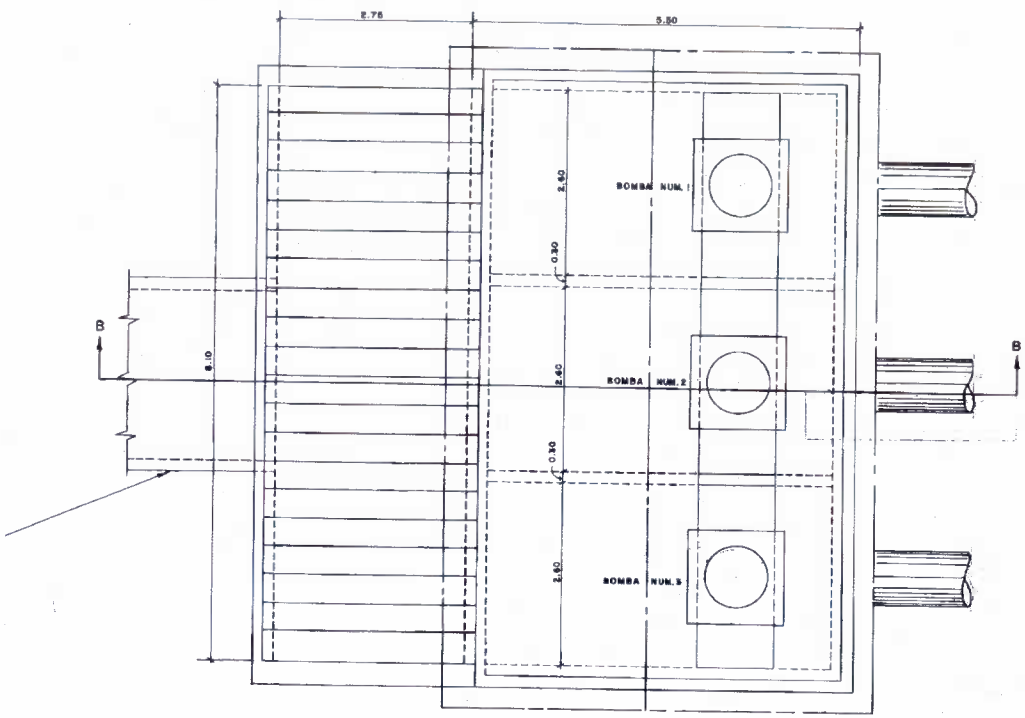

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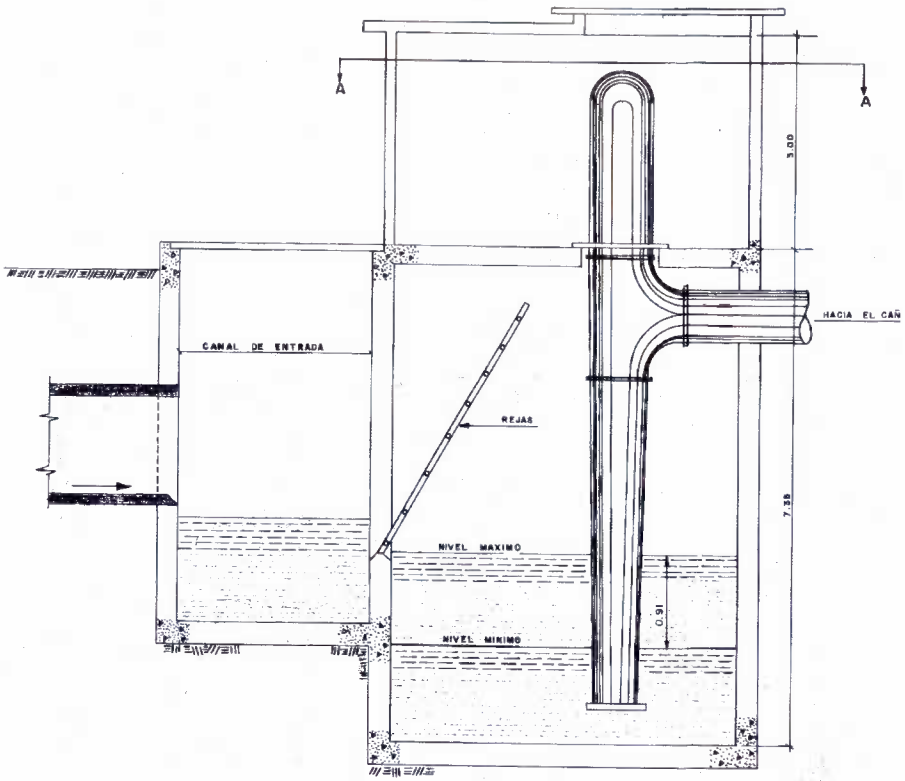

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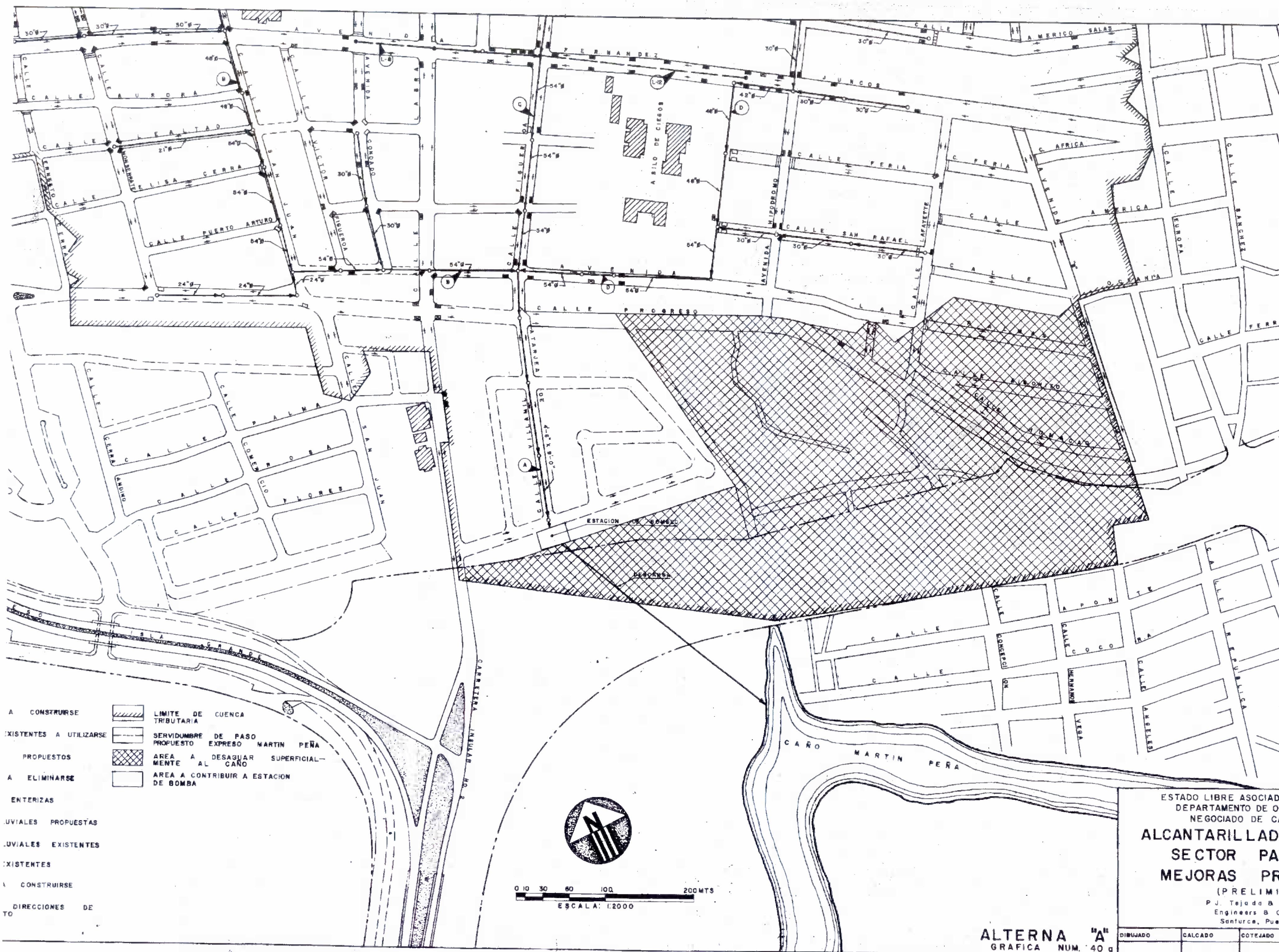

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CALLE ELISA CERRA
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CALLE SAN JUAN
CALLE VICTOR
AVENIDA LABRA
CALLE CONDADO
CALLE FIGUEROA
CALLE FIGUEROA
ASILO DE CIEGOS
AVENIDA HIPODROMO
CALLE FERIA
CALLE SAN RAFAEL
CALLE LAFAYETTE
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CARRETERA INSULAR No. 2
CAÑO MARTIN PEÑA
CALLE APONTE
CALLE COCO
CALLE CONCEPCION
CALLE HERNANDEZ
CALLE VEGA
CALLE ANGELES
CALLE REPUBLICA
CALLE FERRER

ATTACHMENT

5

GOVERNMENT OF PUERTO RICO / OFFICE OF THE GOVERNOR

Environmental Quality Board

October 22, 1996

Ms Kathleen C. Callahan
Director
Division of Enviromental Planning
and Protection
Environmental Protection Agency
290 Broadway
New York, NY 10007-1866

Dear Ms. Callahan:

Enclosed is the Final Report for the proteject **IDENTIFICATION OF ILLEGAL SANITARY WATER DISCHARGES IN THE MARTIN PEÑA CANAL** that is was developed through Section 104(b)3 funds. This report includes the findings of the water quality samplings performed to quantify the impact in the water quality of Martin Peña Canal, of the illegal sanitary connections to the Figueroa storm water pump station. It does not include the laboratory data for metals analyses due to problems related to the quality control and assurance requirements. As soon as these results are received, we will prepare an "addendum" to this report.

If you have any questions, please contac Mr Robert Ayala at (787) 751-5548.

Cordially,

Lucinda Ghigliotty
Director
Water Quality Area

Enclosure

cc: Mr Julio Vázquez
EPA, Region II

NATIONAL PLAZA BUILDING/431 PONCE DE LEON AVE./HATO REY, P.R. 00917
P.O. BOX 11488/SANTURCE, P.R. 00910/TELEPHONE (809) 767-8181

GOVERNMENT OF PUERTO RICO / OFFICE OF THE GOVERNOR

Environmental
Quality Board

Final Report
"Identification of Illegal Sanitary Connections to Storm Water Discharges in the Martín Peña Canal"

The **"Martín Peña Canal"** is a natural canal that connects the San Juan Bay with the San José Lagoon and is part of the San Juan Bay Estuarine System (SJBES), which was declared an estuary of national importance by the Environmental Protection Agency (EPA) . This waterbody is classified by the Water Quality Standards Regulation (WQSR) as SC. These are coastal waters designated for recreational activities such as fishing and boating and for the preservation and propagation of desirable species. The Martín Peña Canal presents a high degree of contamination due to discharges of sanitary waters, garbage and rubble which restains compliance of the uses established in the WQSR for this waterbody.

Since 1986, the Puerto Rico Environmental Quality Board (PREQB) iniciated studies to identify the source of contamination of the SJBES, including the development of an inventory of wastewater disposal methods of the structures bordering these waterbodies. Currently, this inventory includes the wastewater disposal methods of a total of 24,197 structures distributed in 33 sectors near the SJBES.

The findings showed that the system, specifically the Martín Peña Canal receives wastewater discharges from interconnections between waste and storm water systems, from illegal discharges to the storm water systems and from direct discharges to the waterbodies.

NATIONAL PLAZA BUILDING/431 PONCE DE LEON AVE./HATO REY, P.R. 00917
P.O. BOX 11488/SANTURCE, P.R. 00910/TELEPHONE (809) 767-8181

Another source of contamination identified are the storm water pump stations that receive sanitary waters. Although these pump stations were constructed for flood control purposes, there are several of them that need to be activated daily even during dry seasons. The most significant case is the storm water pump station located at the Figueroa neighborhood (stop 18)in Santurce. This pump station, owned by the Department of Natural and Environmental Resourses (DNER), receives a great amount of sanitary waters from an area in Santurce. These sanitary waters discharge to the Martín Peña Canal in the area used by the "Aquaexpreso" transportation system. The data obtained from the DNER for November 1991 to April 1992 showed that this station discharged a total of 441,125,000 gallons of untreated waters to Martín Peña Canal during that period. Most of these discharges were made during dry seasons.

In Fiscal Year 1992, EQB received $45,000 in federal funds under Section 104 (b) 3 of the Clean Water Act, to identify the source of the sanitary water that reaches this storm water pump station. The findings and results of this study are found in the **Progress Report of the Project for the Identification of Illegal Sanitary Connections to Storm Water Discharges in the Martín Peña Canal** that was sent to the EPFA on February 17, 1994 (Appendix 1).

The project developed included a water quality sampling to quantify the impact of the pump station discharge in the water quality of Martín Peña Canal. The samples taken were analyzed to identify bacteriological contamination, nutrients and nine (9) metals. Appendix 2 contains a list of the parameters analyzed, according to the **Quality Assurance Project Plan (QAPP)** revised on March 1994. However, due to several problems related to monitoring procedures and results, three (3) monitoring incursions were necessary. The problems arose and the findings at each monitoring incursion are as follows:

1. **August 29, 1994**

Samples were taken at three (3) monitoring stations:

Station	Description
01	At the discharge of the Figueroa pump station.
02	At Martín Peña Canal, east of the pump station discharge.
03	At Martín Peña Canal, west of the pump station discharge.

The bacteriological samples were analyzed at the PREQB laboratory. The nutrients and metals samples were sent to the United States Geological Survey (USGS) laboratory in Ocala, Florida. Appendix 3 includes the sampling results except data for metals analyses, due to problems related to the quality control and assurance requirements. As soon as these results are received, we will prepare an "addendum" to this report.

The TP, ammonia nitrogen and TKN values were higher at station 01 (pump station discharge). However, NO3 + NO2 nitrogen was higher at station 03 (Martín Peña Canal, west of the pump station discharge). The WQSR does not include standards for neither of these parameters for SC waters. Concerning the bacteriological analyses, the evaluation of the data showed a discrepancy between the results of the analyses and the location of the monitoring stations. Station 03, located downstream of the pump station discharge according to the tide movement, registered fecal coliform values of <1 colonies per 100 milliliters (col/100ml), less than station 02 located upstream of the pump station discharge (see Appendix 3). Furthermore, we found that important information concerning the procedure and conditions of the sampling were omitted. Among these are:

a. The sampling report did not include the climatological conditions (such as rain, sun, wind, among other factors).

b. The QAPP was designed taking into consideration tidal fluctuations. There was no indication of the tidal condition during sampling.

c. The location and description of the monitoring stations did not agreed with the approved QAPP. No reason was submitted for this variation.

d. The report did not indicate if the pump station was activated before the sampling.

For all of these reasons, a new sampling was required for bacteriological analyses (fecal coliform, fecal streptococci and total coliforms).

2. **March 15, 1995**

A new sampling at the pump station and Martín Peña Canal was performed. The samples were taken during the hours in which the tide was at its lowest point, according to the data given by the Meteorological Station in San Juan. Samples were taken during and after the discharge of 75,000 gallons of wastewater to the Martín Peña Canal from the storm water pump station located at the Figueroa sector in Santurce. To correct the previous monitoring deficiencies, samples were taken at five (5) monitoring stations located at the pump station and the receiving waterbody. The description of these stations is as follows:

Station	Description
01	At the pump station discharge
02	At Martín Peña Canal, at the De Diego Expressway bridge.
03	At Martín Peña Canal, 600 ft. east of the canal that receives the discharge from the pump station.

04	At Martín Peña Canal, at the joint with the canal that receives the discharge from the pump station.
05	At Martín Peña Canal, 600 ft. west of the canal that receives the discharge from the pump station.

Appendix 4 includes the results of this sampling. The data showed fecal coliform values that ranged from 6,650 col/100ml (Station 02) to 87.650 col/100ml (Station 05), all of them in violation to the WQSR. An additional sampling was programmed for bacteriological analyses.

3. **March 27, 1995**

As in the previous occasion, the samplings for bacteriological analyses were performed when the tide was at its lowest point, according to the data given by the Meteorological Station in San Juan. The sampling conditions were favorable and samples were taken after activation of the Figueroa pump station. Eventhough the tide was at its lowest point, the effects of the strong breeze over the water surface were noticed.

The results of this sampling can be found in Appendix 5. Fecal and total coliforms values were found as too numerous to count (TNTC) in the dilutions of 0.1, 1.0 and 10 mg/l. Eventhough PREQB does not have a standard for fecal streptococci, the registered values ranged between 17,650 col/100 ml at Station 03 (Martín Peña Canal, 600 ft. east from discharge) to 867,000 col/100 ml at Station 01 (pump station discharge). These results confirmed the fecal contamination problem that we presumed exists in the Martín Peña Canal.

MR/yhs

Doc: 96-005

APPENDIX I

COMMONWEALTH OF PUERTO RICO/OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD

Water Quality Area

February 18, 1994

Mr. Richard Caspe
Chief
Caribbean Municipal Programs Branch
Region II, 26 Federal Plaza
New York, N.Y.,10276

Dear Mr. Caspe:

Enclosed is the latest Progress Report for the project IDENTIFICATION of ILLEGAL SANITARY CONNECTIONS to STORM WATER DISCHARGES in the MARTIN PEÑA CANAL that is being developed through Section 104(b)3 funds. This report includes the more recent findings detected during the field investigations performed by our technical personnel.

Currently, we are taking additional steps in order to require PRASA the clean up of the obstructed sewer lines in order to finish our investigations at the study area.

Cordially,

Lucrnia Ghiglietty
Director
Water Quality Area

Enclosure

cc: Mr. Julio Vázquez
EPA, Region II

DOC. NAME: CRICASPE
1994-00-23
MR/mr

COMMONWEALTH OF PUERTO RICO / OFFICE OF THE GOVERNOR

Environmental Quality Board

FEB 17 1994

PROGRESS REPORT OF THE PROJECT
FOR THE IDENTIFICATION OF ILLEGAL
SANITARY CONNECTIONS TO STORM
WATER DISCHARGES IN THE
MARTIN PEÑA CANAL

The investigation already performed by the Waterbodies Restoration Division of EQB's Water Quality Area shows there are several situations, almost all related with deficiencies in the sanitary systems of the Puerto Rico Aqueduct and Sewer Authority (PRASA), that are responsible for the wastewater discharges to the Stop 18 storm sewer pumping station and to the Martín Peña Canal. These deficiences and the interconnections of wastewaters to the storm sewer system are contributing with more than half of the sanitary waters that are reaching this pumping station and are being discharged to the Martín Peña Canal. These situations are illustrated on Map #1 and are described as follows:

1. There is a sanitary line that begins near the Central High School for Fine Arts (Ponce De León Avenue near Stop 20) in Santurce. However, this sanitary line is really functioning as a combined sewer, due to the fact that it receives the sanitary and storm waters discharges from many of the structures located along Ponce De León Avenue in Santurce.

   This system goes from south (Hato Rey) to north (San Juan) and is located at the east sidewalk of the Ponce De León Avenue. Almost all the structures at the east side of this Avenue and one 10 stories building (Ponce De León #1250) located at the west side of the Ponce De León Avenue discharge their sanitary waters to this combined system. Also, there are ten (10) streets at the east side of the Ponce de León Avenue that partially discharge their wastewaters to this combined system.

   The combined sewer system continues through the Ponce De León Avenue up to Tizol Street, where it receives the combined (sanitary and storm) waters from the north side of the Ponce De León Avenue (See #1 in Map #1). This system crosses under the Ponce De León Avenue, continues below "Nuestro Teatro", up to Condado and Del Carmen

Streets. At this point, the flow divides and about 75% of it reaches a storm sewer main trunk, going to the Stop 18 pumping station. The remaining 25% goes to the sanitary line at the Condado and Del Carmen Streets.

2. The sewer system at Del Carmen Street and Condado Corner is obstructed and the sanitary waters backflow to the storm sewer described under item 1 above. This illegal discharge to the storm sewer system was confirmed by dye test.

3. Interconnection from the sanitary sewer system to the storm sewer system at Hipódromo Street corner with Fernández Juncos Avenue. This interconnection receives the sanitary waters from an area comprised by: north- Ponce de León Avenue; south- Fernández Juncos Avenue; east- De Diego Expressway (Tunel Minillas); and west- Hipódromo Street. The storm sewer system goes through the Instituto de Ciegos (School for Blinds) Loaíza Cordero and reaches the Stop 18 pump station.

4. The area from the Fernández Juncos Avenue up to Feria Street does not have a sanitary sewer system and is discharging to a storm sewer at Hipódromo Street corner with Feria Street. The area lacking sanitary sewers includes eight (8) structures, among them an eight (8) stories building.

5. Restrooms of the Instituto de Ciegos (School for Blinds) Loaiza Cordero is discharging to the storm sewer.

6. Interconnection of the sanitary sewer to a storm sewer at Del Carmen Street corner with Figueroa Street.

7. Interconnection from the sanitary sewer to the storm sewer at San Juan Street corner with Navas Street. This situation was confirmed by dye tests.

8. Sanitary waters from Ernesto Cerra Street discharging to the storm sewer system at Fernandez Juncos Avenue. The origin of these sanitary waters has not been investigated due to the obstruction of the storm sewer of the Ernesto Cerra Street. The clean-up of the storm sewer system was requested to the Municipality of San Juan without any action being taken up to now.

9. Storm sewer at sidewalk in the Fernández Juncos Avenue, between Monserrate and San Juan Streets receiving sanitary waters. This storm sewer line joins a storm sewer main trunk at Fernández Juncos Avenue, in front of San Juan Street, up to the Stop 18 Pump Station. There are several structures in this area that are pending to be investigated.

10. Sanitary waters from two (2) structures at Ponce de León Avenue, between Figueroa and Hipódromo Streets, discharging to the storm sewer system at Figueroa Street. These structures are: Ponce de León #1309 and Ponce de León #1302. Both structures are three (3) stories buildings.

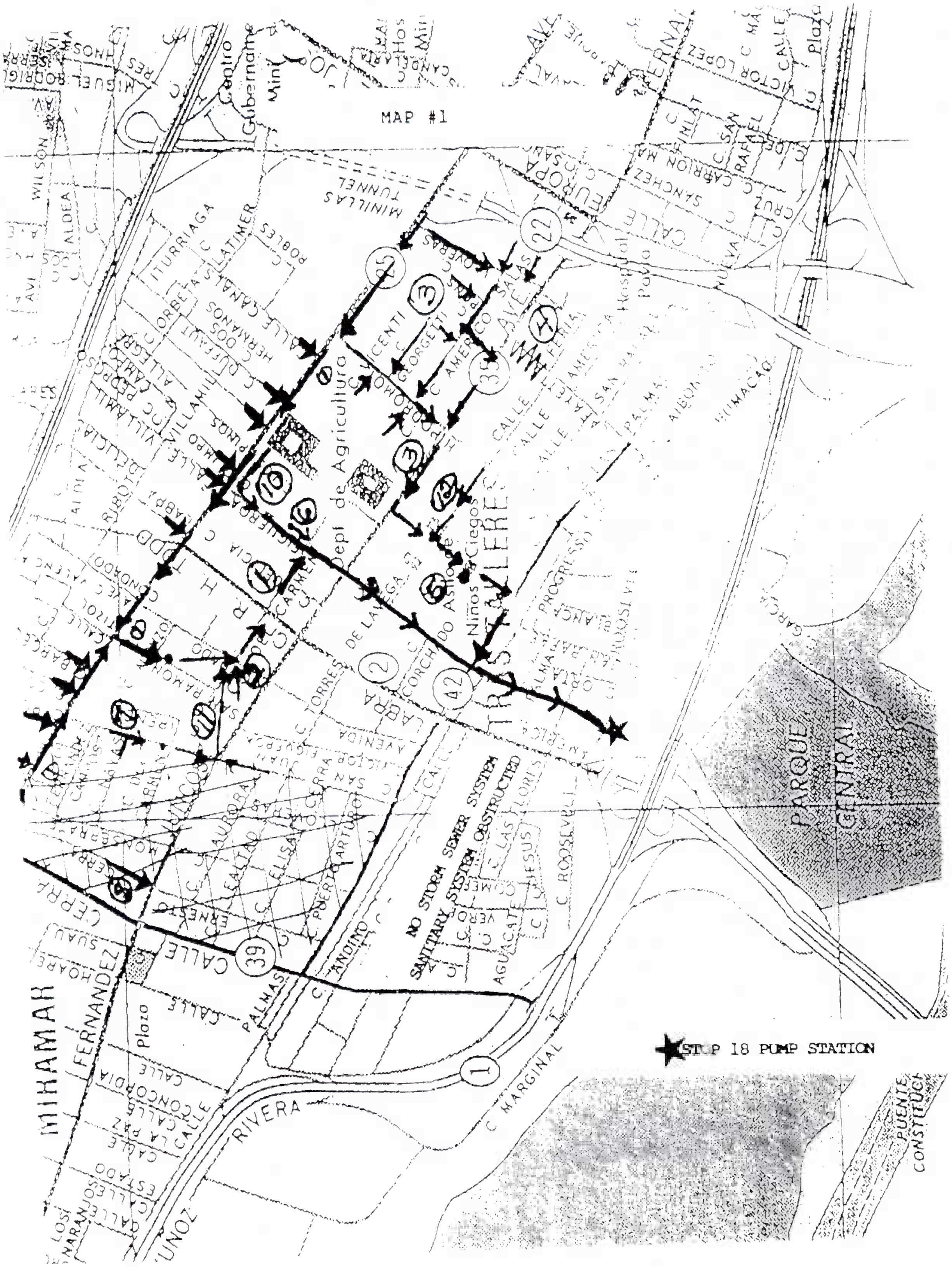
11. Interconnection of sanitary waters to a storm sewer at Fernández Juncos Avenue near San Juan Street. This storm sewer goes through the Ruiz Belvis School yard and through the Café Yaucono industry before joining the storm sewer system at Del Carmen Street. Map #2 shows the area discharging to this storm sewer through this interconnection.

12. Interconnection of the sanitary system at Feria Street to the storm sewer system (near School for Blinds). This sanitary sewer receives the sanitary waters from the Doctor's Hospital and from a clinic and environmental laboratories.

Each of the above situations are shown in Map #1. The situations described in #1,3,11 and 12 are the ones with the greatest amount of sanitary waters to the Stop 18 Pump Station. However, Map #3 shows several areas within the study area that are pending to determine the disposal and/or origin of the sanitary waters to storm sewers. The obstruction of the sanitary and storm sewer systems is the principal obstacle to such determination. The clean up of these storm and sanitary sewers have been requested in several ocassions to PRASA and to the Municipality of San Juan in order to finish our investigations (See appendix I). This clean-up has not yet been done.

DOC. NAME: PROREP18
1994-00-14
MR/nrb

MAP #1


STOP 18 PUMP STATION
NO STORM SEWER SYSTEM
SANITARY SYSTEM OBSTRUCTED
PARQUE CENTRAL
Dept de Agricultura
MINILLAS TUNNEL
MIRAMAR
FERNANDEZ
C MARGINAL
RIVERA
MUÑOZ
PUENTE CONSTITUCION

MAP #2


AVENIDA PONCE DE LEON
CERRA
CALLE
FERNANDEZ CAMPOS
C. NAVAS
C. DEL ARMEN
JUNCOS
C. IRENE
C. ALONZO
SAN RAMON
CONDADO
C. R. H. TODD
DELICIA
C. LOS
MINILLAS TUNNEL
Dept. de Agricultura
C. VICENTI
C. GEORGETTI
C. AMERICO
C. LLOVERAS
SALAS
AVE.
35
22
C. ERNESTO
C. AURORA
LEALTAD
C. ELISA
C. PUERTO ARTURO
C. TORRES
DE LAVEGA
CORCHADO
Asilo de Niños Ciegos
TRAS TALLERES
CALLE FERIA
CALLE AMERICA
Hospital
SAN RAFAEL
LAS PALMAS
C. ALBONITO
HUMACAO
ANDINO
C. ROBLES
C. VALENCIA
CALLE
C. SOLA
C. VERDEJO
C. COMERCIO
C. NUEVA
C. ROSA
C. LAS FLORES
AGUACATE
C. JESUS
C. ROOSEVELT
AMERICA
C. ORIA
PALMA
PROGRESSO
C. SAN RAFAEL
C. BLANCA
ROOSEVELT
PARQUE CENTRAL
C. GARCIA
Canal
PUENTE CONSTITUCION
Area descargando sistema pluvial (11)

MAP #3

Area de lineas
sanitarias obstruidas

APPENDIX 2

TABLE II

PARAMETER
QAPP-1

PARAMETER	NUMBER OF SAMPLES	SAMPLE MATRIX	ANALYTICAL METHOD REFERENCE	SAMPLE PRESERVATION	HOLDING TIME
NO_2 + NO_3 as N	3	Water	USGS-I-4545-85	$HgCl_2$/NaCl Cool 4°C	28 days
NH_3 - N	"	"	USGS-I-4522-85	"	"
Total Phosphorous	"	"	USGS-I-4600-85	"	"
Chlorides	"	"	USGS-I-2057-84	Cool 4°C	"
Oil & Grease	"	"	EPA 413.1	H_2SO_4 pH <2	"
Total Dissolved Solids (TDS)	"	"	USGS-I-3750-84	Cool 4°C	7 days
Total Suspended Solids (TSS)	"	"	USGS-I-3765-84	"	"
Fecal Coliforms	"	"	Std. Methods 17th 9222 D	"	6 hours
Total Coliforms	"	"	Std. Methods 17th 9222 B	"	"
Hydrogen ion (ph)	"	"	EQB SOP 021.2	N/A	Analyzed in field
Dissolved Oxygen	"	"	EQB SOP 021.3	"	"
Temperature	"	"	EQB SOP 021.1	"	"
Arsenic (As)	"	"	USGS I-3062-85	HNO_3 pH <2 Cool 4°C	6 months
Barium (Ba)	"	"	EPA 208.2	"	"
Cadmium (Cd)	"	"	USGS I-3138-89	"	"
Copper (Cu)	"	"	USGS I-1274-89	"	"
Total Chromium (Crt)	"	"	EPA-200.7	"	"
Manganese (Mn)	"	"	EPA-200.7	"	"
Mercury (Hg)	"	"	USGS I-3462-85	HNO_3/KCr_2O_4 Cool 4°C	28 days
Lead (Pb)	"	"	USGS I-3403-89	HNO_3 pH<2 Cool 4°C	6 months
Zinc (Zn)	"	"	EPA 200.7	"	"

APPENDIX 3

(1)

Page 1 of 1

ENVIRONMENTAL QUALITY BOARD
OFFICE OF LABORATORIES
MICROBIOLOGY
WATER QUALITY STUDIES

Study Caño Martín Peña
Body of Water Estuario Laguna San Juan

Date 30/agosto/94

Analyst Signature Edgar C Villafañe
Supervisor Signature Edgar C Villafañe

STA. No.	TOTAL COLIFORMS COUNTS/100ML	FECAL COLIFORMS COUNTS/100ML	FECAL STREPTOCOCCUS COUNTS/100ML	METHOD	DATE	OBSERVATIONS
C I	0	0		MF	29/agosto/94	TNTC en dilución de 35,103 ml para CT
Est 01	> 8,000	25,600		MF	29/agosto/94	3 en 35 y 10 ml para CF
Est 02	$\bar{Y}$=7 8,000	$\bar{Y}$=1,600		MF	29/agosto/94	TNTC en dilución de 35,103 ml para CT 2 en 35 y 10 ml para CF muestra en duplicado
Est 03	> 8,000	< 1		MF	29/agosto/94	TNTC en dilución de 35,103 ml para ambos de C de ambos totales
CF	0	0		MF	29/agosto/94	

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QUÍMICO LICENCIADO

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PUERTO RICO ENVIRONMENTAL QUALITY BOARD
WATER QUALITY AREA

Project Name: Identification of Illegal Sanitary Connections to Stormwater Discharges in the Martin Peña Canal

QAPP Number: 1

Sampling Date: August 1994

Station No.	NO_2 NO_3-N mg/l	TKN mg/l	TP mg/l	NH_3N mg/l	Chlorides mg/l	Oil & Grease mg/l	TDS* mg/l	TSS* mg/l	AS µg/l	Ba µg/l	Cd µg/l	Cu µg/l	Crt µg/l	Mn µg/l	Hg µg/l	Pb µg/l	Zn µg/l
MPC - 001	<0.02	25.0	2.8	17.0													
MPC - 002	0.49	1.6	0.25	0.92													
MPC - 003-a	1.1	0.56	0.15	0.44													

*TDS - Total Dissolved Solids

*TSS - Total Suspended Solids

APPENDIX 4

ENVIRONMENTAL QUALITY BOARD
SAMPLING DIVISION

AVE. PONCE DE LEON #431
HATO REY, P.R. 00917

CHAIN OF CUSTODY RECORD

SURVEY 106 Bomba Parada 18 C Caño Martín Peña)

SAMPLER (Signature) A. Carrión, O. Osorio, R. Figueroa

Station Number	Station Location	Date	Time	Samp Type Water comp	Samp Type Water grab	temp °C.	seg no.	Container g	Container p	Volume & Specific	Analysis Requiered	Preserva
001	Descarga de la bomba	950310	1136		✓	27.0	1		✓	1/500 ml	CF-CT, EF	Cool
002	Puente expreso de Diego	950315	1136		✓	26.0	2		✓	1/500 ml	CF-CT, EF	"
004	Ante de la unión al Caño M. Peña	950315	1209		✓	28.0	3		✓	1/500 ml	CF-CT, EF	"
003	600' después de la unión Caño M. Peña (lado derecho)	950315	1355		✓	27.0	4		✓	1/500 ml	CF-CT EF	"
005	600' después de la unión Caño M. Peña lado Izquierdo mirando hacia la bahía	950315	1357		✓	29.0	5		✓	1/500 ml	CF-CT, EF	"

Dispached by: Signature	Date	Time	Received by (signature)	Date	Time	Temperature
A. Carrión	15/marzo 95	1456		15/mar 95	1456	0.5 °C

Remarks CF = Coliformes fecales, CT = Coliformes totales, EF = estreptococos fecales

Distribution Orig.

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ENVIRONMENTAL QUALITY BOARD
OFFICE OF LABORATORIES
MICROBIOLOGY
WATER QUALITY STUDIES

Study Caño Martin Peña
Body of Water Estuario
Date 03-17-95

Analyst Signature [illegible]
Supervisor Signature [illegible]

STA. No.	TOTAL COLIFORMS COUNTS/100ML	FECAL COLIFORMS COUNTS/100ML	FECAL STREPTOCOCCUS COUNTS/100ML	METHOD	DATE	OBSERVATIONS
C I	0	0	0	MF	03-15-95	-
Est. 1	<1	>60,000	>60,000	MF	03-15-95	TNTC en diluciones de 10, 1.0 y 0.1 ml para análisis CF y SF.
Est. 2	<1	6,650	8,850	MF	03-15-95	TNTC en diluciones de 10 ml para análisis de CF y SF.
Est. 3	$\bar{x}$=<1	$\bar{x}$=9,469	$\bar{x}$=6,425	MF	03-15-95	TNTC en diluciones de 10 ml para análisis de CF y SF. Muestra duplicada.
Est. 4	<1	>60,000	>60,000	MF	03-15-95	TNTC en diluciones de 10, 1.0 y 0.1 ml para análisis CF y SF.
Est. 5	<1	87,650	44,500	MF	03-15-95	TNTC en diluciones de 10 ml para análisis CF y SF.
C F	0	0	0	MF	03-15-95	

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APPENDIX 5

ENVIRONMENTAL QUALITY BOARD
SAMPLING DIVISION

AVE. PONCE DE LEON #431
HATO REY, P.R. 00917

CHAIN OF CUSTODY RECORD

G. Ojeda

SURVEY 106 Bomba Parada 18 I (Caño Martín Peña)

SAMPLER (Signature) [illegible]

Station Number	Station Location	Date	Time	Samp Type Water comp	grab	temp °C	seq no.	Container g	p	Volume & Specific	Analysis Requiered	Preservation
001	Desc. de la bomba	950327	1057		✓	29.5	1		✓	1/500 ml	CF-CT-EF	Cool 4°C
002	Puente expreso De Diego	950327	1100		✓	29.0	2		✓	1/500 ml	CF-CT-EF	" 4°C
004	Antes de la unión del Caño M. Peña	950327	1132		✓	29.0	3		✓	1/500 ml	CF-CT-EF	" 4°C
003	600' despues de la unión Caño M. Peña lado derecho hacia la bahia	950327	1248		✓	27.0	4		✓	1/500 ml	CF-CT-EF	" 4°C
005	600' despues de la unión C. Martín Peña lado izq. hacia la bahia	950327	1248		✓	27.0	5		✓	1/500 ml	CF-CT-EF	" 4°C

Despached by: Signature	Date	Time	Received by (signature)	Date	Time	Temperature
A. Carrión	27/03/95	1435	[illegible] Despacho	27/03/95	1435	1°C

Remarks CF = Coliformes fecales, CT = Coliformes totales, EF = estreptococos fecales

Distribution Orig. — Copy Survey Coordination Field Files

ENVIRONMENTAL QUALITY BOARD
OFFICE OF LABORATORIES
MICROBIOLOGY
WATER QUALITY STUDIES

Study Caño Martín Peña
Body of Water Caño

Date 29 de marzo de 1995

Analyst Signature [illegible]
Supervisor Signature [illegible]

STA. No.	TOTAL COLIFORMS COUNTS/100ML	FECAL COLIFORMS COUNTS/100ML	FECAL STREPTOCOCCUS COUNTS/100ML	METHOD	DATE	OBSERVATIONS
CI	0	0	0	MF	27marzo95	
Est 1	TNTC > 80,000	TNTC > 60,000	867,000	MF	27marzo95	TNTC en diluciones 10, 1 y .1 ml para análisis de CF y CF y en 10 y 1 ml para EF.
Est 2	TNTC > 80,000	TNTC > 60,000	20,850	MF	27marzo95	TNTC en diluciones de 10, 1 y .1 ml para análisis de CT y CF y en 10 ml para EF
Est 3	TNTC > 80,000	TNTC > 60,000	17,650	MF	27marzo95	TNTC en diluciones de 10, 1 y .1 ml para análisis de CT y CF y en 10 ml para EF
Est 4	TNTC > 80,000	TNTC > 60,000	533,000	MF	27marzo95	TNTC en diluciones de 10, 1 y .1 para análisis de CT y CF y en 10 y 1 ml para EF.
Est 5	$\bar{x}$ = TNTC > 80,000	$\bar{x}$ = TNTC > 60,000	$\bar{x}$ = 48,175	MF	27marzo95	TNTC en diluciones de 10, 1 y .1 ml para análisis de CT y CF y en 10 ml para EF muestra en duplicado
CF	0	0	0	MF	27marzo95	

APROBADO

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